

AGASTAT®

TIMING INSTRUMENTS

PNEUMATIC

ELECTRONIC

PROGRAMMERS

SR-1

OCTOBER 1966

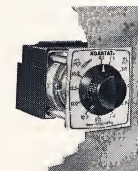
(Supersedes January, 1966)

NEW 2400 series electropneumatic time/delay/relay



time-calibrated adjustment dials

nine linear adjustment ranges provide delays from milliseconds to 60 minutes



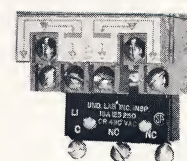
new panelmount style

modern dial plate and knob, with mechanism protected behind the panel



front terminals

out-front accessibility with permanent identification, for easy wiring



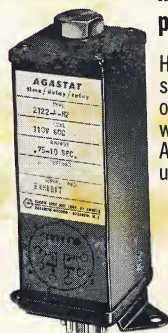
auxiliary switch options

easily-added auxiliary switches handle extra circuits or provide two-step timing

The all-new 2400 SERIES AGASTAT time/delay/relay opens new areas of application potential for pneumatic timers. Advanced design combining time-tested principles with modern materials obsoletes any reservation circuit designers may have had about earlier pneumatics units.

Today, AGASTAT relays provide the reliability and versatility matched only by the most sophisticated electronic components, with a bonus of economy and ruggedness which put them in a class by themselves. Request Bulletin SR-2 for complete specifications.

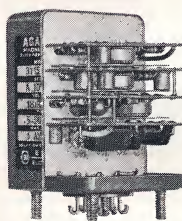
miniature pneumatic t/d/r



Hermetically sealed or unsealed units for MIL-spec or other demanding applications where space is limited. AC or DC operation, timing up to 3 minutes.

See p. 3 for general specifications.

electronic t/d/r

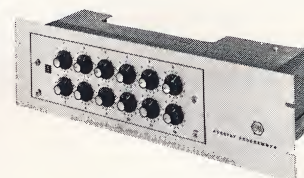


New Magnetic Core-Counter Models as well as the conventional R-C Units in a wide range of operating types, time ranges, and output options.

See p. 4 for general specifications.

programmer

A new combination of solid state timing accuracy and electro-mechanical switching, offering unmatched versatility in low cost programming.



See p. 4 for general specifications.



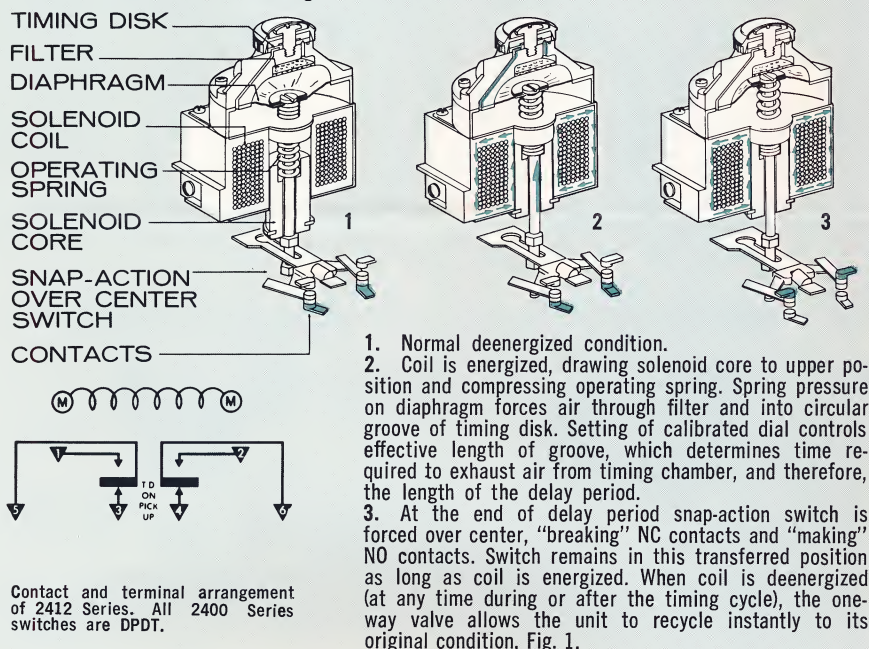
ELASTIC STOP NUT CORPORATION OF AMERICA
AGASTAT DIVISION ■ ELIZABETH, NEW JERSEY

industrial AGASTAT® time/delay/relay

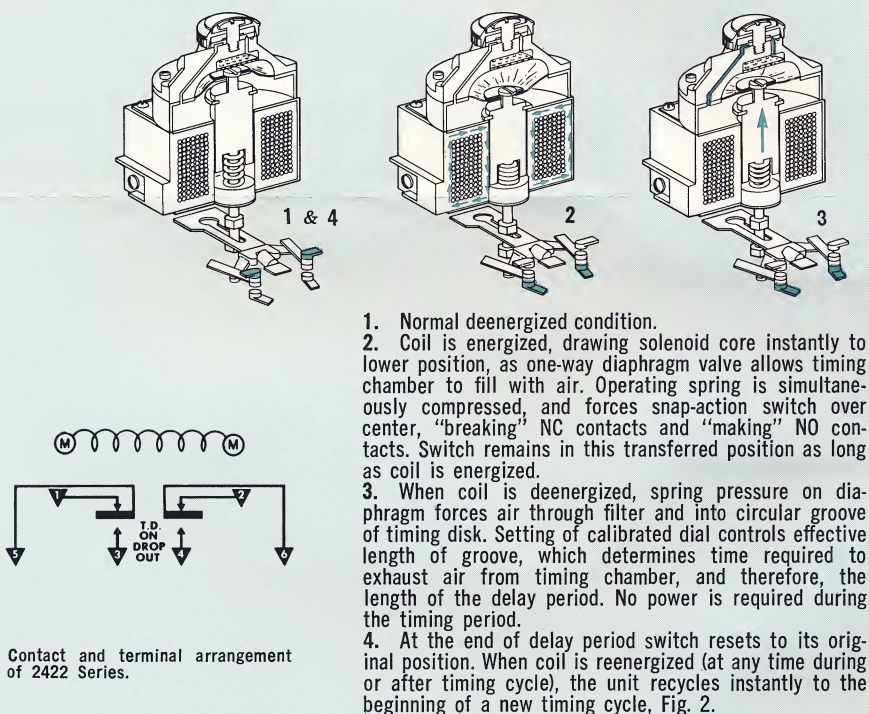
HOW A MODERN PNEUMATIC TIMER WORKS

AGASTAT time/delay/relays are electrically actuated, but **pneumatically** timed . . . they recirculate their own filtered air supply . . . this means long timing ranges, easy adjustment, instant recycling . . . no need for stable voltage supply for accurate timing . . . less temperature sensitivity. Here are the operating principles of the two basic types:

TYPE 1—DELAY ON PULL-IN — 2412 SERIES provides delayed switch transfer on energization, with instant reset on deenergization.



TYPE 2—DELAY ON DROP-OUT — 2422 SERIES provides instant switch transfer on energization, with delayed reset on deenergization.



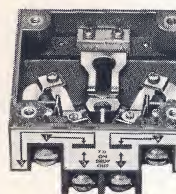
These diagrams have been simplified to illustrate relationship of basic components. Parts shown are not representative of actual production models.

design features

Other manufacturers assemble time delay relays using switches, solenoid coils or other parts originally designed for non-timing applications. Extensive research through the years has proven, however, that the proper balance of electrical, mechanical, and pneumatic forces required to produce a reliable timing instrument cannot be achieved in this manner. This is why every component of the AGASTAT time/delay/relay has been expressly designed for its specific part in the overall timing function. These are the main components of the 2400 Series relays:



Calibrated timing head — uses no needle valve, recirculates air under controlled pressure through a variable orifice to provide linearly adjustable timing. Patented design provides instant recycling, smooth adjustment and long service life under severe operating conditions.



Precision-wound potted coil module supplies the initial motive force with minimum current drain. Total sealing without external leads eliminates moisture problems, gives maximum insulation value.

New snap-action switch assembly — custom-designed over-center mechanism provides greater contact pressure up to transfer time for positive, no-flutter action. All switches are DPDT arrangement, with flexible beryllium copper blades and gold bonded silver-cadmium oxide contacts. Special "timing-duty" design assures positive wiping action, sustained contact pressure, and greater heat dissipation over long delay periods.

Each of these main sub-assemblies forms a self-contained module which is then selectively mated at the factory with the other two to afford a wide choice of coil voltages and timing ranges. The coil and switch housing are molded in highly stable glass-and-nylon-filled alkyd enclosures. This material is a special non-gassing formulation with high arc resistance. It provides an attractive, weather-tight housing in a new shape designed to complement the most modern panel or equipment.

The squared design with front terminals and rear mounting permits the grouping of 2400 Series units side-by-side in the minimum panel space. Auxiliary switches may be added in the base of the unit, without affecting the overall width or depth.

timing adjustment

The 2400 Series AGASTAT is the first pneumatic timer to offer the ease of adjustment and resetting of a time-calibrated dial head. Nine ranges are available, covering a total span from .1 second to 60 minutes. (See table) Each has its own time-calibrated, clearly identified dial.

Timing is set by simply turning the dial (in either direction) to the desired time value. The standard head has no stops — it can safely be turned past the 360° point, although a "dead zone" of approximately 60° separates the high and low ends of the range. Setting the unit in this area will result in infinite time delay.

mounting/terminals

Normal mounting of the basic unit is in a vertical position, from the back of the panel. Four tapped holes are provided in the back plate of the unit, making it interchangeable with earlier AGASTAT industrial models. A front mounting bracket is also supplied with each unit, for installation from the front of the panel.

A new horizontal panelmount model is also available, offering the convenience of "out-front" adjustment, with large calibrated faceplates and modern dial skirt knobs. The plate and knob blend with advanced equipment and console designs, while the body of the unit and its wiring are protected inside the cabinet. Faceplates are time calibrated in all standard ranges.

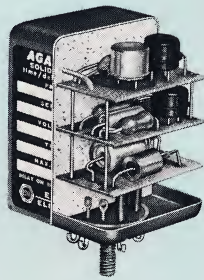
Other mounting options include plug-in and special configurations to meet unusual installation requirements. Your inquiries are invited.

Standard screw terminals are located on the front of the unit, with permanent schematic markings. Barrier isolation is designed to accommodate spade or ring tongue terminals, with spacing to meet all industrial control specifications.

AGASTAT® electronic timing instruments

time/delay/relays

- miniaturized . . . universal base size
- excellent recycling characteristics
- exceptional accuracy
- unmatched reliability—protected against voltage transients and reversed polarity
- highly stable
- AC or DC operation

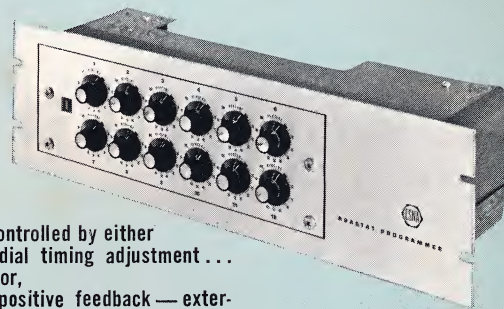


Extend AGASTAT reliability into the solid state field; hermetically sealed, with no moving parts for extreme environmental capabilities. Available for delay on energizing (with delayed or instantaneous switch transfer) or deenergizing, in a variety of models, including fixed time or adjustable units. Incorporate built-in protection against input transients and polarity reversals. New **MAGNETIC** models eliminate "first-cycle" effect, provide unequalled accuracy and reliability over extremely long delay periods.

	R-C	MAGNETIC
operating voltage	18-32 VDC or 93-130 VAC	18-32 VDC.
ambient range	—55 to 100°C	—55 to 85°C
timing ranges	.01 to 300 sec. standard. Higher ranges available.	.05 to 500,000 sec. Delays up to years avail.
repeat accuracy	As low as $\pm 0.5\%$ depending on delay period.	$\pm 0.25\%$ @ fixed temp., voltage and off time.
vibration	20 g's @ 2,000 cps.	20 g's @ 10-2,000 cps.
terminals	Solder hook, miniature, or octal plug.	Solder hook, miniature or octal plug.
output	Solid state or relay.	Solid state or relay.

Request Bulletins SS-3 (R-C), and SS-4 (Magnetic)

programmers



- controlled by either dial timing adjustment . . . or, positive feedback — external switch closure
- single solid state time control
- eliminates control relays, timers, and simplifies wiring
- precise timing adjustment during operation
- plug-in drum pins for load switching flexibility

A simple, reliable solution for low-cost automatic control. Individual steps controlled by easily-adjusted potentiometer dials or external sensors, such as temperature, pressure, or photoelectric transducers.

standard specifications—series 2912

number of circuits	20 SPDT switches maximum
steps per cycle	12
maximum stepping rate	4 steps/second
load capacity per circuit	15 amperes resistive at 120/240V 60 cps
timing control	high repeatability solid state timer
timing adjustment	time-calibrated dials
timing ranges (per step)	A—25 to 10 seconds B—1 to 100 seconds C—1 to 10 minutes
operating voltage	120 volts 60 cycles
operating temperature	0°F to 165°F
mounting	standard 19" relay rack front panel, table top, or rear panel
external control options	positive external control may supplement timed control for each step
illuminated step indicator	front panel indication of cam position

Request Bulletin SP-3

AGASTAT sales representatives

STATE	CITY	NAME & ADDRESS	PHONE
CALIFORNIA	Long Beach 90815 San Diego 92107 San Mateo 94401	*AGASTAT Timing Instruments, 2750 Bellflower Blvd. John C. Henberger, 4032 Wabaska Dr. McCarthy-Kelly & Associates, 279 N. Bayshore Blvd.	425-7434 223-7114 342-8351
COLORADO	Denver 80203	The Cliff Beabout Co., 666 Sherman St.	244-3151
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NEW JERSEY	Omaha 68102	Bert Gurney and Associates, Inc., 336 Aquila Court	342-8445
NEW MEXICO	Elizabeth 07208	Home Office, 1027 Newark Ave.	352-2900
NEW YORK	Albuquerque 87110 Buffalo 14217 Manhasset 11030 Syracuse 13214 Charlotte 28206 Cleveland 44135 Dayton 45403 Tulsa 74105	Albuquerque Electronics Co., 2318 Wisconsin, N.E. The Robert F. Lamb Company, Inc., 3407 Delaware Ave. Ray Fara Associates, 1295 Northern Blvd. J. F. Wulfetange Div., P.O. Box 126 Jake Rudisill Associates, 2009 North Tryon St. Jay Engineering Company, 4712 West 130th Jay Engineering Company, 1721 E. Third St. Harold Furtney Company, Box 7081, So. Side Sta. Andrew L. Polich, Inc., 5940 S.W. Hood Ave. C. N. McDavitt, P.O. Box 8, Pilgrim Gardens Station Foster-McClinton, Inc., 1675 Washington Rd. Industrial Equipment Company, 6831 Navigation Blvd. P. J. Scanlon Co., Inc., 724C So. Sherman St. Pace-Turpin & Company, 726 S. Third W. Seatronics, Inc., 5931 4th Ave. So. G. H. Zimmerman & Company, Box 1306	298-2628 876-3757 627-1151 446-3330 377-6901-2-3 252-0486 253-2151 747-6490 246-5451 544-2588 561-4803 928-3463 231-4661 322-5595 725-4328 342-2212
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WEST VIRGINIA	Charleston 25325		
CANADA	Scarborough, Ontario	ESNA Limited, 271 Progress Ave.	293-2431
WESTERN EUROPE	Belgium, Brussels 1	INTAIR S.A., Hall Hermes, 1301, Centre International, Place Rogier	17 23 46

*Western District Sales Office

AGASTAT TIMING INSTRUMENTS
ELASTIC STOP NUT CORPORATION OF AMERICA
AGASTAT DIVISION ■ ELIZABETH, NEW JERSEY

| = Revised since last printing

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